AMERICAN JOURNAL
OF
Veterinary Medicine

PUBLISHED MONTHLY BY
D. M. CAMPBELL, D. V. S.
ONE DOLLAR PER YEAR
1920 WILSON AVE CHICAGO, ILLINOIS

ENTERED AS SECOND-CLASS MATTER, JULY 19, 1910, AT THE POSTOFFICE AT CHICAGO, ILLINOIS, UNDER ACT OF CONGRESS OF MARCH 3, 1879

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VOL. VII. MARCH, 1912 No. 3

# The Intradermal Tuberculin Test*

By D. F. LUCKEY, D. V. S., Columbia, Missouri

The old sub-cutaneous or thermal tuberculin test is so unsatisfactory in so many different ways as to give due cause for rejoicing at the discovery of a more simple test, and one that promises to be more accurate. In extreme cold weather, the night and early morning work required in taking temperatures of cattle is disagreeable in the extreme. In hot weather, when cattle are accustomed to the comfortable conditions of the shady bluegrass pasture, it is almost inhumane to confine them for twenty-four hours in a hot dairy barn. Very infrequently, indeed, an animal will be found that is in no condition to give a true reaction to the thermal test. It is no uncommon thing to have to postpone a test on cows that are found in heat, in advanced pregnancy, or which have recently given birth to young. Various other agenices interfere with the temperature, and the length of time required to give the thermal test makes it impractical to use this test in examining a small lot of cattle, scattered through the country. This fact has become extremely apparent to us in attempting to test all of the cattle furnishing dairy products to a city in this state.

The intradermal test has many advantages over the temperature test. No night work is necessary. Neither age, nor the condition of the animal influences the reaction to the intradermal test. A cow that is in heat, one that is in advanced pregnancy, one that has recently

*Read at the semi-annual meeting of the Missouri Valley Veterinary Association, Feb. 1, 1912.

brought a calf or aborted, young or wild animals that are excited or worried may be tested with the intradermal test, as well as the old gentle cow that stands quietly in her stall. The intradermal test is so many times more expedient, as to make comparison almost unnecessary. Without it, we would have been entirely unable, at any reasonable expense, to make the tests of the small scattered herds furnishing dairy products, for instance, to the city of Columbia. With the use of the intradermal test, we have tested over 700 lots of cattle for this city—many of which contained only one, two or three animals. Except for the intradermal test coming to our rescue, we should have been compelled to adandon our plans for the eradication of tuberculosis in the State of Missouri.

For several years, we have wished and striven earnestly, for some more satisfactory and expedient method of testing cattle for tuberculosis than the old temperature test. We have diligently tried out every test that has been mentioned in veterinary literature. As soon as what is known as the "eye test" was announced, we gave it a thorough trial, and found it inaccurate. About the same time, we tried out the method of scratching the skin, and inoculating the scratch with tuberculin, or what was known as the "skin test." This also fell far short of accuracy. It took only a few trials to discover that these tests were unreliable.

Naturally, when the intradermal test was announced, we hoped that it would prove a success, but with the failure of the ophthalmic and the cutaneous test fresh in mind we were very skeptical about it. We, therefore, began its use with extreme caution. We had so little faith in it that we never thought of using it at all, except to compare with the temperature test before any animal was condemned. Results were surprisingly satisfactory from the beginning. We looked for a chance to give it a severe trial. For this purpose, we selected an old herd, which we reasonably expected to be badly diseased with tuberculosis. Fifty-nine of the old animals in the herd were given the intradermal test. One reaction resulted. We were about ready to discard this test without further trial, but we followed up in a few days with the sub-cutaneous test and strange to say, got a slight temperature reaction in the same animal and no others. The reaction from the intradermal test was more marked than that from the temperature test, the latter giving what is ordinarily considered a "suspicious" reaction. The cow was old and practically worthless and, therefore, condemned on the suspicious reaction to the temperature test. Our doubt about the accuracy of both reactions was increased for the reason that this cow had been in the herd for a number of years and none of the other animals had become affected, which is directly contrary to the general rule. She soon went to slaughter and showed a tuberculous lesion of the liver, thereby strengthening our faith in the intradermal test and explaining why the other cattle in the herd had not become affected. We then began the use of the intradermal test on lots of cattle scattered out through the

country around Independence, but never with the thought of condemning an animal showing a reaction to it until the temperature test had been applied. We soon found that the verification of the intradermal test with the temperature test was superfluous and unnecessary, but for the sake of trying the matter out thoroughly, we continued to carry the temperature test along with the intradermal test in diseased herds after we began testing cattle in the vicinity of Columbia. However, we soon discovered the tuberculous centers in the vicinity of Columbia. We ventured to rely upon negative results from the intradermal test in all cattle with a good history. Before finishing the work around Columbia, however, we abandoned the temperature test and used the intradermal test altogether. We left the tuberculin testing off about July 1st, and our whole force went on to tick eradication. When we took up tuberculin testing again last fall, we did so with the intention of using nothing but the intradermal test. Several lots of cattle around Springfield, Pleasant Hill and St. Joseph were tested up to December 31st; in all, 3458 head. Forty-four herds were found to contain one or more reacting animals. One hundred thirty-eight head of cattle were condemned. One hundred three of these condemned cattle have, to this writing, been slaughtered and lesions of tuberculosis visible to the naked eye found in all but two. Considering the slaughtered animals alone, the intradermal test has apparently made two errors in 103 autopsies. At this ratio, there is a probability of less than one error in the 35 reacting cows still on hand. Up to the present time, the intradermal test shows a little over ninety-eight percent accuracy. Granting that one more animal will show no lesions, making three in all, we shall have made three errors in testing over 3,458 head of cattle. *This is far better than we have ever been able to do with the temperature test.*

In beginning our intradermal test, we were a little careless, sometimes purposely so, in regard to surgical cleanliness. While it is impossible to approach surgical cleanliness in using this test, we soon found it paid to be as clean as possible. Very few swellings result from infection and they are quite different in character from the swelling resulting from a positive reaction. The former is soft and inclined to extend along the tail, and passes away sooner. The characteristic reaction from the intradermal test is slightly rounded, very hard, rather painful and persists for several days. As far as our experience has gone, it appears that the reaction from the intradermal test, will, on the average, be at its height on the third day. Sometimes, as a matter of convenience, a re-examination of cattle after injection may be made on the second or fourth day, but our rule is to make this examination on the third day.

We have found that the intradermal injection should be made with a medium sized needle; a very small needle might be preferable, but is too easily broken. It is my opinion that the opening in the epidermis made by a large needle gives more opportunity for infection. We find it convenient to administer this test, taking hold around the tail with the

left hand, and seizing the bare skin on the under surface between the middle finger and thumb, pulling it around as far as possible to one side. At first, we attempted to pick up the caudal fold. We soon found that this was a waste of time, and in our desire to get along with the work, we were willing to make the injection wherever we could find the skin soft and pliable. It is difficult to describe the insertion of the needle, but herein lies the secret of accuracy. A thoroughly clean needle should be pushed along under the surface of the skin, only deep enough so that when the tuberculin is injected, it will not ooze through to the surface. Three or four drops of tuberculin is sufficient to give a reaction. It is impossible to gauge this small amount on the plunger of any ordinary syringe. For all practical purposes, it is sufficient to watch the point of injection and press upon the syringe handle until a little elevation, something like the size of a navy bean or a little larger is produced. By counting up the amount of tuberculin used, we find that about 3 drops will produce a little elevation of this size. A re-examination of a herd of cattle that are free from tuberculosis on the third day after injection shows absolutely nothing. It is extremely difficult, and in many cases, quite impossible to find where the injection was made. In a tuberculous animal, a swelling appears, which varies quite a good deal in size but is sufficiently large, as a rule, that it may be seen for quite a distance. The swelling is hard, painful and sometimes extends around to the upper surface of the tail, and remains from five to ten days.

In all forms of tuberculin tests, an animal now and then will fail to show a clear cut reaction, either negative or positive. I have not been able to figure up the number of "suspicious" reactions from the use of the intradermal test, but as far as we have gone, the indications are that the uncertain reactions will be fewer in number than with the use of the temperature test.

I might say in conclusion that while the tuberculin test seems to be a very simple matter and that farmers and students are inclined to undertake it, it really requires a high degree of skill, judgment and care, if accurate results are to be expected. Neither veterinarian nor layman can jump in and make tuberculin tests and do the most accurate work at the beginning. We credit our record for accuracy to the fact that our men are well qualified veterinarians, are at this work continually, and receive post mortem notes on all cattle slaughtered, while the animals are still fresh in their minds. Only after working at this testing for six months or a year is a veterinarian able to get the most accurate results. Where a veterinarian is testing all the cattle in the community, he soon gets familar with the infected herds and has the history of many animals which he tests to aid him in drawing conclusions. Without such history, errors are bound to occur.

Right here, I would like to explode the fallacy of the yearly testing of dairy herds for tuberculosis. It seems that when the matter of testing dairy cattle was first discussed, it popped into somebody's head to test

these cattle every year, and this theory has been blindly followed. We find in our state work that if an open case of tuberculosis is found in a herd, even though the diseased animal is promptly removed, and the premises disinfected, one or more additional animals are liable to develop tuberculosis within the next few weeks. There is exposure on the day of the test, and shortly before it, which theoretically would cause other animals to develop tuberculosis. Our observation for the past twelve years shows this theory to be absolutely correct in many cases. We had a fine example of results of an annual retest in the State Hospital herd at Farmington. In 1908, two cows reacted and were removed from the herd with reasonable promptness. The people in charge were instructed to disinfect. There is no doubt but what some of the other animals were probably infected upon or shortly before the day the test was made and did not show any reaction. At any rate, the test in 1907 showed *five* animals diseased. These five were shipped out a little more promptly. The test in 1910 showed *eleven* of the best cows in the herd to be diseased. This was about what you will get with the annual tuberculin test when you are handling diseased herds. The results will not always be as bad as this, but will be in many cases. In order to clean up a herd in which an open case of tuberculosis is found, a retest must be made every sixty days, until no reactions are found and then again at the end of a year. Nothing short of this will be certain of results, so that with an annual retest of dairy herds, you are likely to find almost as many tuberculous cattle each succeeding year as were found in the beginning. In the meantime, the people who are seeking protection from tuberculous milk and paying for services have received nothing for their money. The work of the veterinarian is discredited and the efforts of the city and state officials to correct conditions is more or less disgraced. On the other hand, we find herds of cattle in this state, which have been in existence for forty years and which do not contain a single diseased animal. When any herd of cattle is tested and found sound, especially if tested twice in succession, to make certain that no diseased animal has been passed over, it can be safely counted as sound permanently, provided no diseased animals are added to it. An annual retest of sound herds of cattle is unnecessary and without the slightest reason. The annual testing of dairy herds occasions a lot of expense and trouble, and can never bring practical results. To save a lot of expense to the public, and a lot of worry to the owners of sound herds, a record of these herds ought to be made and a certificate of health renewed annually without an inspection, according to the judgment of some competent person who should be placed in charge of this line of work. A temporary certificate of health running not more than sixty days should be issued to the sound animals in herds from which diseased stuff has been removed and repeated retests should follow one after another until the disease is eradicated. In no other way will tuberculosis ever be eradicated from any state or county.

Veterinarians in general practice ought to bear in mind that human lives are endangered by the presence of tuberculosis among cattle, and this is not a matter where the fees from such inspections are of primary importance. It has taken a great deal of hard work on the part of authorities to arouse the public to a realization of the great danger from bovine tuberculosis. All kinds of objections have been made to the inspection of cattle which are used in our dairies or intended for shipment out of the state. Those who have shouldered the responsibility of pushing this campaign of education forward have been accused of many unkind things, among which was that it was a scheme to get work for veterinarians. It has been argued that the tuberculin test was not accurate. Veterinarians have been accused of dishonesty. Many other points have been argued against progress in this important matter. We have barely made a start and there is yet a lot of worry before those who assume the responsibility of getting our herds free from tuberculosis. If we attain the highest success and maintain the reputation of the veterinary profession, it will be necessary for all veterinarians to be extremely careful, to be exceedingly accurate and conscientious in making tuberculin tests and to regard the matter in its true light, and not as work promulgated to get fees for veterinarians.

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# Remarks on Hog Cholera*

**By FRANK W. HUEBEN, D. V. S., President The Hueben Serum Company, Kansas City, Missouri**

While disease of hogs has been considerably discussed, and a repetition of these discussions may seem monotonous, I believe, taking into consideration its vast economic and scientific importance, that too much attention cannot be given it. The losses incurred by the prevalence of this malady among the hogs of our own, and other countries, is almost incalculable.

In the year 1885 losses from hog cholera amounted to over $30,000,000 in the United States, and in 1887 to nearly $4,000,000 in the state of Indiana alone. The past year was another one, in which the losses were such that it would not surprise me to see them figure approximately those of 1885. In some localities the ravages of hog cholera were so great that farmers who had hoped to market a handsome number of hogs, lost their herds, not even saving enough for their winter meat. But aside from these exceptionally severe epizootics, hog cholera is with us always, decimating and even annihilating herds, of some parts of our country, causing great financial loss to the hog raisers of

*Read at the semi-annual meeting of the Missouri Valley Veterinary Society, Kansas City, February 1, 1912.

the stricken locality and menacing the hog supply of the nation and always increasing the cost of meat. So I think there is good reason for the discussion and re-discussion of this vital subject.

Hog cholera is a specific infectious, febrile disease of swine, the blood being the tissue most affected. It may properly be classed as a septicemia. It occurs in two forms, acute and chronic, the acute form greatly predominating. It is caused by an ultra-microscopic organism, which, to date, has defied all attempts at cultivation; probably because of failure to find the proper culture media. This organism is contained in all the body fluids, especially the blood, and is so small, that it will pass through the finest filter. Its elimination takes place in all excrements, and the rapidity with which it is often disseminated, may impress one that it may be volatile. As stated, the virus is contained in the excretions of the diseased animals, becomes mixed with the contents of the pens and runs; the food and water troughs become contaminated, so that animals such as dogs, cats, rats, or birds, which may pass through or alight, in the pens may transport it to the other herds. In rainy seasons, the virus is washed from the infected fields into the creeks and small streams and in this way may pass it from herd to herd along their course. In dry seasons as the past one was, the wind may become a great factor in the spread of the disease. It may be carried on the shoes of a friendly neighbor, on wagon wheels, on railroad cars, in fact anything coming in contact with the virus becomes a carrier thereof. Perhaps right here I may state that few stock raisers seem to realize the danger of a visit to the stock yards, where the infection always abounds, and from whence it may be carried home and cause destruction among their own and their neighbor's herds.

Another important factor is the failure, of some whose hogs have died of the disease, to properly dispose of the carcasses; leaving them unburied or unburned, in this manner allowing carrion birds and other animals to carry the infection from place to place. In fact, the ease with which this infection is disseminated has convinced me that a strict, thoroughly effective quarantine is extremely difficult, if not impossible of execution. True quarantine is helpful to a limited extent, but it will never entirely prevent the spread of the costly scourge from infested to non-infested areas.

The incubation period of this infection varies from five to fourteen days, usually about seven to eight days, and produces the following symptoms:

At first there is listlessness, this occasionally is preceded by shivering; the sick animals separate themselves from the rest of the herd; their temperature rises two to three degrees; there is disinclination to eat, and when driven the sick hogs lag behind, showing weakness, staggering; this is more pronounced in the hind quarters; the ears and tails are drooping; there may be swelling at the base of the ears; their temperature keeps rising until it reaches 107, 108, 109 and even 110° F.

There is complete anorexia; sometimes there is a mucoid nasal discharge and lachrymation with adhesion of the eyelids; there appears a thumping and drawing in of the flanks; this thumping is usually nonsynchronous with the respiratory movements; the respirations are accelerated; usually but not always there develops a dark-colored, foul-smelling diarrhea, this may be preceded by constipation; sometimes petechiae and ecchymoses, or blotches appear in the skin of the abdomen, between the thighs, and on the breast; these always occur in other parts of the skin, but cannot be so readily seen as on the parts mentioned. Death usually occurs in from one to five days in acute cases.

In chronic cases the symptoms are practically the same, but much slower, and less intense in their development; hemorrhagic areas of the skin are nearly always present and are from dark red to purplish in color. Progressive emaciation also takes place, which is not so pronounced in the acute cases.

POST-MORTEM LESIONS.—Varying-sized hemorrhagic areas of the skin, located especially between the thighs, along the abdomen and on the breast; when the skin is removed the subcutaneous tissue usually shows many small ecchymoses; the inguinal glands are usually but not always hemorrhagic; the sublumbar, mesenteric, gastro-hepatic, broncho-esophageal and submaxillary lymphatic glands are nearly always hemorrhagic, varying in color from light red to almost black. The spleen is usually enlarged, dark in color, and friable, but is often found perfectly normal or just studded with petechiae or ecchymoses, especially along its borders and under surface. The kidneys are usually congested but sometimes pale in color, and show from a few to a great number of petechiae and ecchymoses; these are sharply defined and will not wash off or disappear on rubbing or on the application of pressure. The peritoneum, both parietal and visceral, may or may not show petechiae or ecchymoses of the underlying tissues. The greater lobes of the lungs are seldom involved, except occasionally ecchymoses under the visceral pleura may be found. The cephalic lobes, however, are nearly always in a state of either red, mixed or grey hepatization. Changes in the heart are rare. In one or two cases I have found ecchymoses on the external surface of the auricles. The stomach contents are sometimes mixed with blood; the mucous membrane congested and petechiae may be found under the serous surface. The small intestines usually appear normal, except there may be petechiae under the serosa and congestion of the mucosa; the same can be said of the cecum and colon; except in chronic cases, the mucosa is congested, thickened and presents necrotic ulcers, especially near the ilio-cecal valve; these ulcers varying in size, have a button-like appearance, and are covered with a dirty appearing coat which when removed discloses a ragged crater. Occasionally there is also a hemorrhagic infiltration of the bones, especially noticeable in the cancellated portion of the vertebrae and sternal segments. In the clinical diagnosis of hog cholera the symptoms which

have impressed me as being diagnostic are, high temperature, inappetence, weakness of the hind quarters, dark colored diarrhea, thumping of the flanks, which is nonsynchronous with respiration, and hyperemic areas of the skin.

On autopsy the following lesions verify diagnosis: Hyperemic glands, enlarged, dark colored, friable spleen, petechiae or ecchymoses in the cortex of the kidneys and under the serous membranes, hepatization of the cephalic lobes of the lungs; hemorrhagic areas of the skin, and in chronic cases ulceration of the mucous membrane of the large intestine.

DIFFERENTIAL DIAGNOSIS.

*Swine plague:* In swine plague there is marked dyspnea, hacking cough, thumping of flanks is synchronous with respiration, absence of dark colored diarrhea; there is a diffuse erythema, light red in color, which affects principally the thoracic region.

*Post mortem.* Congestion, hepatization, and necrotic areas are found existing simultaneously in the lungs, giving them a mottled appearance when cut; this is usually associated with fibrinous or purulent pleuritis and pericarditis; the congestion of the lymph glands is not as pronounced as in hog cholera. Usually confined to the cortex of the gland. There is no petechiae or ecchymoses on the kidneys; the spleen is normal, the mucous membrane of the intestines is normal, and the temperature does not reach the height it does in hog cholera.

*Pneumonia.*—Marked dyspnea, thumping of the flanks synchronous with respiration; cough is always present, no diarrhea, is not as contagious as hog cholera.

*Post-Mortem.*—Congestion, red mixed or gray hepatization involving the greater portion of one or both lungs, absence of hemorrhagic areas of skin; kidneys, spleen and intestines normal.

*Worms.*—Absence of high temperature, detection of parasites in the feces and occasionally in the vomition. No hemorrhagic areas on skin, anemic mucous membranes.

*Treatment.*—As the agents which have been selected from our materia medica have proven inefficient as curatives for this malady, prophylaxis seems to be the proper and only treatment at hand.

As stated in the beginning of this paper, complete quarantine being practically impossible, we must do the best we can along that line. Hygienic measures can be applied in the care of hogs as well as other animals; clean water, clean and proper feed, clean, well drained quarters, clean surroundings, the liberal use of disinfectants and the exclusion of strange animals, can do but good. But by far the most reliable preventive now available is the administration of potent antihog-cholera serum by the simultaneous method. The proper use of this agent should become the means of exterminating hog cholera from the herds of the country, if we can educate, or persuade, the raisers of swine, to have all the unvaccinated hogs now in the country vaccinated and continue the

vaccination of all pigs littered ten to fifteen days after birth, or at the time of weaning.

If this can be accomplished, I firmly believe that the days of hog cholera are numbered. To date it appears the inclination is to use antihog-cholera serum as a curative for the disease, which is not its proper field as the results obtained are absolutely uncertain. True, the mortality in infected or exposed herds may be considerably reduced by its administration after infection; but no definite proportion of recoveries can be promised. I find that in using serum as a curative it is important to pay attention to the temperature and appetite, its injection being useless when the temperature is above 105° F., or when the appetite is entirely absent regardless of temperature. If the animals still eat and the temperature is not above 105° F., I believe that the administration of serum will save the larger portion of these hogs. The dose, however, should be increased to one and one-half the dosage for healthy hogs. As the dose of antihog-cholera serum is gauged according to the weight of the animal, it is important that the user be proficient in judging the weight of hogs; he should at least make sure to estimate them on the safe side, rather estimating them over, than under, weight.

Regarding some of the other agents that have been widely advertised of late, I cannot express an opinion, as my experience with them is too limited.

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**Annual Report of the Veterinary Director General** and Live Stock Commissioner of the Department of Agriculture, Ottawa, Canada, by Dr. J. G. Rutherford. This is an immense report of 400 pages, and will prove a revelation to most veterinarians in the States who will learn through it for the first time of the wide range of activities of this important department of the Dominion Government.

The effectiveness of the quarantine regulation for the prevention and control of infectious diseases among animals in Canada is a surprise. For example take hog cholera. In the Dominion any veterinarian or other person discovering hog cholera is required to report it at once to the veterinary director general, who at once takes control of the situation through a deputy commissioner. All infected animals and all those exposed to the disease are immediately slaughtered and the premises thoroughly disinfected, and an indemnity of two-thirds of the value of the animal is paid the owner. This method has proven effective in handling this disease in Canada and it is now practically eradicated. The amount of biologic products distributed by the Live Stock Commissioner is very large.

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THE JOURNAL is a very practical and instructive periodical, one that no practitioner or student can be without and be up-to-date.

HERMAN GROSS.

Webster, S. Dak.

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# A Long Step Forward

Those who have been readers of VETERINARY MEDICINE continuously during the past six years are accustomed to seeing improvements in it; have long ago come to regard its career as one of steady progress toward better things. There is not a day in the year that we do not receive anywhere from one to twenty-five letters remarking upon the improvement VETERINARY MEDICINE is making with every issue. To those who have known this journal longest and best our "long step forward" will come as no surprise.

Notwithstanding the faith of its readers, it has been realized at the producing end for some time that to make any further material improvement in the present quality of VETERINARY MEDICINE under present conditions would render it a debtor to its publisher. On the business side, the publication of a journal such as this is a commercial enterprise, as much so as the management of a department store. Given the receipts at a certain level and there is a well defined limit beyond which the expense of running it may not go.

The fault that has been found with VETERINARY MEDICINE ten times as often as the sum of all other faults put together is that "there is not enough of it." To remedy this, in so far as we might under the

circumstances, we have long adopted the plan of condensing the material published, so that during the past two years VETERINARY MEDICINE, in spite of its limited size, has contained more articles, and said more, than any other veterinary publication. But this policy alone no longer suffices to meet the demands upon our space, or to keep the cost of publication where it will admit of the improvement in quality which we are determined to make.

But one alternative remains, and this we are now pleased to announce:

*Beginning with May issue,* VETERINARY MEDICINE *will be doubled in size, and within six months—as soon as we can get our new stride, it will be improved in quality more than one hundred percent.*

This requires an increase in price; it can be avoided only by securing an endowment, and as we do not look for that the increase goes: *May first, the subscription price of this journal will be advanced to two dollars. Subscribers may renew at any time before that date for any term of years at the existing rate of one dollar a year.*

We have long promised ourselves and our many friends in the profession that we should double the size and improve the quality of VETERINARY MEDICINE when we had the support of three-fourths of the veterinary profession in America—when our subscribers numbered 7,500. This point will be passed before the April issue is in the mails, and we do not feel that we are justified in postponing our "long step forward." The increased size and price will make possible many things for the betterment of this journal which we have had in view for long and we are sure the change will be welcomed by every subscriber.

## To Every Veterinary Student

Except you are attending one of the state schools you will *not* receive your April number of VETERINARY MEDICINE unless you send me a card NOW telling me what your address will be after you leave school.

Periodicals are not forwarded by the post office department; you know this but many of you forget it. As soon as you leave the city to which your journal is addressed the postmaster notifies the publisher to discontinue sending your journal to that office and that all future copies sent there for you will be destroyed. Your name goes off our subscription list and you fail, because of your own negligence, to get your journal for which you have paid.

There are going to be some mighty good things in the April issue and some better ones in the May number which I hate to see you miss, but it is up to you, either let me know NOW where to reach you next month or "forever hold your peace" about not getting your journal. A postal card will suffice for the notification.

## Equine Mortality Statistics

Few veterinarians not practising in the larger cities realize the appalling loss among city work horses from accidents and disease. Seven thousand horses valued at $1,500,000 died in Chicago last year. In six weeks, during the heated term last summer, 1,680 horses were destroyed. During the bitterly cold days—January 8 to January 18 of this year—a horse had to be shot every fifteen minutes of the working days.

In New York the fatalities among horses were proportionately even greater, 28,300 dying during 1911. In the week ending July 8, 948 horses succumbed on the streets of New York, and the following week the number was 760. For four consecutive midwinter weeks the average was 442 a week, or nearly 75 for each working day. The foregoing figures are from records furnished by the boards of health.

## Hog Cholera: Its Differential Diagnosis

We commend to all the very important and highly instructive article given elsewhere in this issue on hog cholera, and particularly that part of it which deals with the symptoms and post-mortem lesions of this disease and the means of its differentiation from other diseases of swine. We believe, that with most veterinarians the term hog cholera is made to include two or three, perhaps even a greater number of diseases of hogs. In any measures undertaken for the control or eradication of this disease the question of diagnosis is of first importance. We must learn to diagnose hog cholera with more accuracy than we are now doing.

We cannot agree with the essayist's statement that quarantine for this disease is practically impossible, since elsewhere this plan of handling hog cholera has proven completely successful; under conditions differing much from those in United States it is true, but quarantine methods are susceptible of much variation. Nor can we entertain his optimistic view that the proper use of antihog-cholera serum should be the means of eradicating hog cholera from the herds of the country. Perhaps the *proper* use of serum would do this, but is such use practicable or even possible?

The production and use of antihog-cholera serum has been well understood for five years and yet each successive year during that time has seen a marked increase in hog cholera. There are many more antihog-cholera serum plants in Missouri than in any other State, possibly as many as there are in all the rest of the United States combined, and yet the supply of serum was totally inadequate in amount to make even a perceptible impression upon the epizootic of cholera

in Missouri during the past season. No one questions that potent serum properly used will protect individual herds from cholera, but as yet no one has even suggested a feasible plan for its general application. If antihog-cholera serum has a part in the eradication of hog cholera from the country it will probably be as a factor in some far more comprehensive plan.

## The Intradermal Tuberculin Test

The article elsewhere in this issue on the application of the intradermal tuberculin test deals with a subject of tremendous importance to veterinarians and to the dairy interests of this country and indirectly to all consumers of milk and its products.

In the twenty years that tuberculin has been in use nothing else as important has been learned about its use as this discovery that it may be used intradermally and accurate results obtained.

The clinic at the meeting of the Missouri Valley Veterinary Association in Kansas City, February 1 and 2 consisted chiefly of a demonstration of this method of tuberculin testing. Dr. L. D. Brown, deputy state veterinarian of Missouri, who has assisted in testing about eight thousand animals by the intradermal method, described minutely its application.

A 20-gauge dental hypodermic needle is used for the injection. The point of the needle is ground so that it has merely a sloping point, and will, to use Doctor Brown's expression, "plow under the cuticle." The shank of the needle should be not more than three-sixteenths to one-quarter of an inch long.

The injection may be made any place on the animal where the skin is thin and the hair is short and sparse. On the tail or just forward at the side of the vertebral column is the site usually chosen. In hogs the injection is usually made just behind the ear and the reaction is just as marked and the test just as accurate as it is in cattle.

One to three minims of tuberculin are used for an injection. The tuberculin is placed between the cuticle and the cutis, raising the former just as a blister does. If the injection be made into the cutis its elasticity expels the tuberculin and the reaction is not secured. If the injection is made deeply into the skin or beneath it the tuberculin is carried away by the lymphatic circulation and no reaction is manifest. The reaction to the intradermal tuberculin test is very marked, consisting of an indurated, almost non-inflammatory swelling of about the size of a pecan that persists from two to ten days.

With this method it is easily possible for one man to test, at one time, all of the cattle along ten to fifteen miles of roadway in an ordinary dairy district, making the injection one day and returning three days later to make the dagnosis.

The second day of the clinic of the Missouri Valley Veterinary Association was spent at the plant of the Swift Packing Company where autopsies were held on ninety-eight head of cattle that had been given the tuberculin test under the direction of Doctor Washburn and others of the Local Bureau of Animal Industry. Every facility was afforded the veterinarians for viewing the autopsy by Superintendent Twiss of Swift and Company.

Of those tested, forty head were given the intradermal test and one reacted. Later fourteen of this number, including the one that reacted, were given the subcutaneous tuberculin test; the results corresponded to those obtained from the intradermal test. The remaining fifty-eight animals received the ocular test and of these five reacted. Thirty-three, including two of the reactors were later given the subcutaneous test and only one reacted. The autopsy demonstrated the accuracy of the intradermal and ocular test and revealed one failure on the part of the subcutaneous test to pick out the tubercular animals. This failure, however, cannot be charged against the subcutaneous test, as it was given soon after the ocular test, which may have prevented or modified a reaction that would otherwise have been obtained.

For the intradermal test the ordinary B. A. I. tuberculin was used, the same as is used for the subcutaneous test. In the ocular test a special preparation is necessary, a tuberculin much more concentrated than that used in making the subcutaneous test. The intradermal method possesses many advantages over the ocular test, the chief of which is the longer duration of the reaction. The reaction to the ocular test may last only a few hours and may occur at any time within the first forty-eight hours. This necessitates that the animals be watched continuously during this time. Neither the intradermal nor the ocular test should be given sooner than sixty days following a subcutaneous test, and conversely the subcutaneous or thermal test should not be given immediately after either the intradermal or the ocular test.

The experience of veterinarians as related at this clinic coincided with the statements of Doctor Luckey, that the intradermal test properly applied is more accurate than the subcutaneous test and probably costs not less than one-tenth as much to apply.

## Antiseptic Surgery---Its Originator

At the age of eighty-five Joseph Baron Lister died in London February 11. He was the founder of antiseptic surgery and indirectly of its outgrowth—aseptic surgery.

When Lister began his surgery almost all wounds underwent a process of suppuration accompanied by much pain and loss of health. Many persons died rather than face the dread ordeal of an operation. The miseries of the wounded in war and the horrors of field surgery are

indescribable. The mortality from amputations was more than forty percent and even minor laparotomies were nearly always fatal.

So wonderful have been the advances and triumphs in surgical work since the introduction of antiseptics that no safe prophecy can be made in opposition to the present claims and expectations of enthusiastic experts. On all of the internal organs, on the spine and on the brain, delicate operations have been performed with marvelous success.

What was pronounced impossible by the surgeons of a generation ago has been accomplished. Operations which would have resulted in death before Lister's time are familiar features in our operating rooms.

The surgeon's skill and his delicate instruments have penetrated even the mysterious realms of intellect and morals—many operations on the brain resulting in transforming the feeble-minded and the vicious into conditions of intellectual and moral manhood have been accomplished.

"You can do anything in surgery that does not actually kill your patient on the table, provided you exclude the pathogenic germs during the operation," says a leading American surgeon. Already bones from cold storage have been made to serve as natural ones in legs of the living, and it is confidently predicted the surgeon will soon be able to preserve sound kidneys until occasion for their use arises, when they may be installed in working order in place of diseased ones.

## The Laborer and His Hire

In Kansas where they pay brick-layers and stone masons sixty-five cents an hour when engaged on state work, but where the law prohibits the payment, by the state, of more than fifty cents an hour for veterinary services, the Legislature recently saw fit to enact a stallion registration law requiring among other things an examination for soundness. The examination called for is most thorough and must be made by a qualified veterinarian. The law provides that the charge for this examination shall not exceed *two dollars* for each stallion examined. The owner of the stallion pays the fee—the veterinarian gets it. The State is no party to the transaction and could with just as much propriety set the fee for attending a case of colic.

Most of the veterinarians in Kansas with more or less grumbling against those in the profession whom they believed responsible for the low fee, acquiesced in the two-dollars-per-examination arrangement, but not all. Dr. W. W. Wiseman of Delphos was recently called to examine a stallion at some distance from his office, and charged two dollars for the examination and *ten dollars*, the regular charge, for mileage. His aggrieved client took the matter up with the state officials, who supported him in his contention. The matter ended in the courts, where Doctor Wiseman won.

# The World's Work in Veterinary Science

A Digest of all the Current Literature of Comparative Medicine

By DR. L. W. FETZER
Washington, D. C.

THE causative organism of foot-and-mouth disease discovered, by J. Siegel (Berlin. Tierärztl. Wchnschr., 1911, Vol. 27, No. 50, pp. 909-915, Fig. 1).—A diplococcus having a close similarity to the gonococcus, diplococcus pneumoniae, and the diplococcus intracellularis was isolated with methods used for trypanosomes from the blood during the fever stage, heart, spleen, and the blebs of animals suffering from foot-and-mouth disease. They are termed "cytoryctes cocci."

By feeding the cultures of this organism grown on agar to shoats or bovines the disease was reproduced, thus practically satisfying Koch's postulates. In the bovine the characteristic blebs and erosions of the mucous membranes of the mouth were reproduced by feeding or injecting the cultures.

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METHOD for giving intravenous infusions of Salvarsan for pneumono-pleuresia contagiosa equorum (The pectoral form of equine influenza), by Rips (Berlin. Tierärztl. Wchnschr., 1911, Vol. 27, No. 18, pp. 321–323). A solution of Salvarsan, dioxydiamidoarsenobenzol or Ehrlich-Hata 606, is prepared as follows:

To 500 gm. of a sterile salt solution in distilled water having a temperature of 45° to 50° C. (113° to 122° F.) 1 gm. of Salvarsan is added and the mixture shaken thoroughly until solution has taken place. After this thirty-eight drops of a fifteen-percent solution of sodium hydroxid is added and the mixture is shaken again. The solution must finally be alkaline to litmus. The hair in the region of the jugular vein is now shaved off and the area sterilized with tincture of iodin. The horse is now properly held with the head inclining slightly to the right. The infusion is instilled into the left jugular vein with a hollow needle, and a special form of apparatus which is described, at a temperature of 38° to 40° C. (100.4° to 104° F.). During the infusion process the burette containing the Salvarsan must never be entirely empty. The dose is 0.01 gm. per kilogram (2.2 pounds) of animal, the optimum amount

being 3 to 4 gm. (See AMER. JOUR. VET. MED., 1911, p. 862) for the first three stages of the disease. If, however, the horse has a bilateral pneumonia after the fifth or sixth day, then an injection of 2 gm. followed three days later with 3 gm. is given. After the operation the area is painted over with a little collodion. Contraindications are horses previously treated with arsenical preparations.

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IN regard to the action of sulphur on the intestine, by T. Frankl (Arch. Expt. Path. u. Pharmakol., 1911, Vol. 65, p. 303).—The cathartic action of sulphur, which is explained by the author as being due to the fact that a portion of it is converted (oxidized) into sulphurous acid which has a stimulating action on the mucosa of the intestine. This produces a hyperemia and an increased peristalsis. The formation of sulphurous acid is also supposed to take place when sulphur is applied to the skin. The formation of hydrogen sulphide, which is a generally accepted fact, could never be noted as an accompanying reaction.

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DEFICIENCY of calcium in feeds; its relation to osteomalacia, by A. Scheunert and A. Schattke (Ztschr. Veterinärkunde, 1911, Vol. 23, No. 11, pp. 495–502).—A number of horses in a German cavalry regiment which were fed with hay having a very low lime (CaO) content were affected with osteomalacia.

The daily hay ration, which was 2,500 gm., contained 10.2 to 18.5 gm. of CaO and 9.4 to 13.9 gm. of phosphorus (calculated as $P_2O_5$), while in control hays 19.2 to 21.8 gm. of calcium and 10.3 to 14.7 gm. of $P_2O_5$ were present. The amount of oats fed was 5,150 gm., and which contained 4.1 to 7.7 gm. of CaO and 44.9 to 53.9 gm. of $P_2O_5$. The amount of calcium oxide present in a control feed was 4.6 to 5.2 gm., and the amount of phosphorus as $P_2O_5$ was 41.0 to 51.9 gm.

The figures show that the calcium oxide content of the oat ration when compared with that of the hay ration was exceedingly low. On the other hand, by comparing the $P_2O_5$ content of the oat ration with that in the hay ration it is seen that the order is reversed.

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HAY FEVER in horses, by Walther (Berlin. Tierärztl. Wchnschr., 1911, Vol. 27, No. 45, pp. 818, 819).—Catarrh of the upper air passages accompanied by violent coughing spells was observed in horses of a large German cavalry regiment, as well as in the exposed horses of civilians.

The condition was diagnosed as hay fever. Influenza catarrhalis could be excluded.

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PERNICIOUS anemia in horses, by Braun (Munchen. Tierärztl. Wchnschr., Vol. 54, No. 14, pp. 230, 231.)—In ten horses, four of which died and six of which were slaughtered because they were incurables, the author diagnosed the presence of pernicious anemia. The symptoms were as follows:

A high degree of debility, drooping of the head, a dull appearance, yellow stained conjunctiva, a temperature between 39.5 and 41° C., and a pulse between 50 and 120. At the end of the disease edema was present. All therapeutic attempts were futile. The duration of the disease was between two and three months. The results of the necropsy showed a watery condition of the blood which had not coagulated, a fatty degeneration of the cardiac muscle, and an enlargement of the liver, spleen, and kidneys. Hemolysins were present in the kidneys.

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THE prevention and treatment of calf dysentery with Ventrase, by M. Klimmer (Deut. Landw. Presse, 1912, Vol. 39, No. 1, pp. 1, 2).—Ventrase, which is a colloidal silver preparation containing a protective colloid in addition, was given to new-born calves with the milk. Comparing the results thus obtained with the check animals which received no Ventrase the results must be considered good.

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EQUINE influenza due to a filterable virus, by J. Basset (Compt. Rend. Acad. Sci. [Paris], 153 (1911), No. 8, pp. 485–487).—Equine influenza (pink eye, pasteurellosis; Lignières, contagious pleuro-pneumonia, etc.) according to this investigator is produced by a filterable virus. He was able to reproduce this disease in three horses by inoculating the defibrinated blood, and in some instances with the filtered blood obtained from a typical case of this disease.

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## Springtime Surgery

FROM THE PREFACE:

There is an obvious advantage in having grouped, in one small volume, really meritorious discussions of the cases most common at any season. The articles in this book, which are reprinted from THE AMERICAN JOURNAL OF VETERINARY MEDICINE, constitute, we believe, the most instructive yet brief description, and the most helpful case-reports to be gleaned from the literature on the surgical and obstetric problems common during the foaling and castrating season. The discussions of "Springtime Surgery," while in no sense exhaustive, yet constitute for the practising veterinarian, a valuable supplement to the standard textbooks of veterinary surgery and obstetrics.

The superior merit of these articles amply justifies their reproduction in a form more permanent than is offered by magazine publication. The frequent requests from subscribers for copies of the issues of VETERINARY MEDICINE containing various of these articles convinces us, that their presentation in book form will be welcomed by a large number of veterinarians and that this volume will be of much usefulness in this field.

A further description may be found on the last cover page.


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Enclosed you will find $1.00 for renewal of my subscription to your Journal. I think it the most up-to-date journal printed, and could not afford to be without it.

DR. W. B. ROWE,
*Dept. of Agriculture.*

Blenheim, Ont.

TO RENT—To graduate veterinarian, single man preferred, office, stable and kennels. Well-established location. For information write to Mrs. W. Pope, 603 State St., Portsmouth, N. H.

FOR SALE—My veterinary practice and hospital, west side, Chicago. Established 20 years. I want to quit practice on account of poor health. Address Dr. Jas. Bond, Kinzie and 51st Ave.

FOR SALE—Veterinary practice in a town of 30,000 in mining county. Will sell for $1,200,00, which will include business, two horses, buggies, cutter, robes, harness, operating table for dogs and first-class office equipment. Address No. 10, care of VETERINARY MEDICINE.

PRACTICE FOR SALE—In southern Wisconsin, rich dairy region. Nearest competition 12 miles. Practice established year and a half, runs to $1,800 per year now. A chance for a young man to step into a practice that will reach $3,000 in a few years. Am going into another line, will sell to a good, energetic young fellow for $250, just enough to pay me for my instruments, office furniture, etc. Address No. 9, care of VETERINARY MEDICINE.

FOR SALE—Veterinary practice in live county seat in central Nebraska. Barn 40x50 feet, electric lights, city water, operating table, stock, etc. Will sell for what property is worth. A snap for the right man. Don't answer unless you are in the market to buy. Address No. 8, Box 41, Osceola, Nebr.

FOR SALE—My practice of $2,000 a year in Southern Michigan town. Rich country, good stock and prices. Good driving horse and buggy, 1911 M. T. Ford Roadster in good condition. Also my farm of 36 acres of good fertile soil with good buildings. Price $4,500. Address No. 7, Box 167, White Pigeon, Mich.

WANTED—Position as assistant to veterinarian with city practice, by an up-to-date, sober graduate with three years' practical experience. Address No. 6, care of VETERINARY MEDICINE.

FOR SALE—Established practice, $2,000 per year. Also five-roomed house, furnished if desired. Will sell practice with or without house. Address No. 5, care of VETERINARY MEDICINE.

FOR SALE—Good practice in Northern Oklahoma. Good reason for selling. A bargain. For particulars address No. 4, care of VETERINARY MEDICINE.

FOR SALE—Hospital and practice of two veterinarians. A rare opportunity; a chance of a lifetime. Price $1,000, $600 cash, balance in easy payments. (Indiana.) Address No. 11, care of VETERINARY MEDICINE.

NOTICE—We have on hand a few extra copies of the July, August and September, 1910, copies of VETERINARY MEDICINE, also a few copies of all of 1911 issues except August. We shall be glad to supply, without charge, any of these, while they last, to subscribers needing them to complete files.

WANTED—To buy interest in up-to-date practice, or position as assistant to a veterinarian. Graduate of Chicago Veterinary College, '07. References furnished. Address No. 12, care of VETERINARY MEDICINE.

WANTED—A position as assistant veterinarian, with chance for advancement, either in hospital work or general practice, by a graduate. Have had fifteen years' good practical experience, and for ten years was veterinarian to one of the largest stock farms (private) in the East. Address No. 15, care of VETERINARY MEDICINE.

TO TRADE—Practice in a western city of 3,000, for a practice including hospital equipment in Iowa city of 3,000 or more. Will pay difference for good deal. Address No. 14, care of VETERINARY MEDICINE.

FOR SALE or will rent if not sold before May 1st, veterinary practice, hospital and residence. Practice yielding $2,800 annually. Address A. Culverwell, Concordia, Kansas.

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**Results from Classified Advertisements**—Do the "For Sale" and the "Want Ads" in VETERINARY MEDICINE bring many replies? In no other way can one reach as many possible buyers, even at ten times the cost. If you have anything to sell from services to books you can find a buyer if one exists by utilizing space on this page. **Number of replies received for some recent "ads":** No. 98, 14; No. 97, 11; No. 96, 58; No. 94, 20; No. 92, 31; No. 91, 17; No. 90, 20; No. 87, 20; No. 80, 20.

# Pointed Opinions on Live Topics

BY READERS OF

Veterinary Medicine

It is in reports like those of this department that the current history of the progress of veterinary science is written. Are you leaving a record of your experience which will help others, as you have been aided by these and other clinical reports? If not, you are earnestly invited to contribute from your experience that this department may be of the greatest service to its readers. By so doing you will earn the thanks of the editor, the approval of the veterinary profession and the lasting gratitude of those who are aided by your suggestions.

## Effect of Tenotomy for Stringhalt

This horse was presented to the hospital of the George Washington Veterinary College as a subject for surgical clinic. He was a rangy, brown horse, ten years old, weight 1,300 pounds, and without this affection would have been of considerable value. The history was that he would improve each day upon being worked, but that during the last five or six weeks prior to his arrival at the hospital, he had become much worse, and was almost useless.

The professors all agreed that it was the most pronounced case of stringhalt they had ever seen and that, both legs being affected, it was probably of neurotic or central origin and not amenable to treatment.

As the patient advanced, one hind leg would be suddenly flexed and held close to the abdomen as in tonic spasm to be thrown down with much force and followed by similar flexion of the other. It was impossible for him to back, and when turned all coordination seemed to be lost, both legs being flexed at the same time. For instruction to the class it was decided to perform the different tenotomies, with the hope that there might be some improvement.

February 14, the peroneus (lateral extensor) of the left leg was divided and slight improvement was noticed. On the 16th, the horse was placed upon the table and the cunean (internal branch of the tendon of the flexor metatarsi) tendon of the left leg and the peroneus of the right were divided. Immediately after the horse was taken off the table, the left leg was handled almost as well as a normal leg. After several days there was still more improvement. The horse could now walk and trot with only a slight extra flexion of the right leg.

February 21, the cuneus of the right leg was divided, and immediately much improvement was shown. I saw the horse February 24, and it was almost impossible to detect any symptoms of his former condition. Three days prior to his appearance at the hospital, he was sold for $22.50. He is valued at $100 now.

As these tenotomies are simple operations without any untoward

sequelæ, it is certainly worth while trying. Our most experienced instructor, who has had much practice, states that he has had much success dividing these tendons. He believes that stringhalt is usually due to an unbalanced condition between the flexors and extensors. The present case seems to bear out his theory. The improvement is not always immediate, but may come gradually. Once relieved, it is seldom seen to return.

E. R. PERRIN,
*Geo. Washington Vet. College, 1912.*
Washington, D. C.

### The Author Found

I acknowledge the blame for perpetrating the article on the "Treatment of Fistulous Withers" (page 67, February number) upon those in attendance at the annual meeting of the Missouri Valley Veterinary Association, in Omaha, 1911. Because of certain radical statements made in the article, I think perhaps I should acknowledge it.

J. V. LACROIX.
Kansas City, Mo.

### Grooming as a Therapeutic Measure

I regard free elimination as of the utmost importance in the treatment of all disease. Disease, as you know, is chiefly a manifestation of intoxication, and nearly all pathogenic germs harm the animal solely through the toxin which they produce.

The skin, as one of the important factors in elimination, is not to be neglected in the treatment of the sick. I insist upon grooming just as strongly as I insist upon medication, and I consider it in very many cases just as important. I have every patient groomed until its coat will not soil a white handkerchief when rubbed over it, and if the owner is not willing to so clean his animal and to keep its coat in this condition I will not treat the case.

H. J. MCCARTNEY, D. V. S.
Joplin, Mo.

### Veterinary Matters in Wyoming

The report of Dr. B. F. Davis, state veterinarian of Wyoming, to the governor contains a number of interesting facts and figures.

During the year 714 horses were examined for glanders and 87 were tested for other diseases. Nineteen horses were killed on orders from the state veterinarian. Two hundred and forty-one thousand and nineteen head of cattle were examined for contagious and infectious diseases. Of this number, 7,619 were reported to be infected, though as an actual fact but a comparative few were actually diseased. No quarantines were established, during the year but 67,349 head of cattle were ordered dipped.

### Formaldehyde for Sterilizing Instruments

I have not boiled one of my surgical knives in seven or eight years. I use formaldehyde gas exclusively for sterilization of small instruments.

To sterilize knives, hemostats, emasculators and all other small instruments, I place about a dram of formalin in a small pan, put the instruments into this and cover with a clean towel and allow to remain for half an hour. The instruments are thus enveloped

in dense formaldehyde gas and effectively sterilized.

When ready for the operation I fill the pan with water, pour out most of it, fill again, pour out and continue until I get a solution of formaldehyde sufficiently dilute to use as my antiseptic for the operation.

R. C. MOORE, D. V. S.
Kansas City, Mo.

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DR. L. F. BARRETT, 2222 Wabash Ave., Chicago, for two years a member of Wright & Merillat's "Flying Squadron," was married Jan. 17, to Miss Katherine E. Hickey. Dr. and Mrs. Barrett will locate in Bradford, Pa.

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### Nuclein

*From The Veterinary Record, London, December 16, 1911. Report of a meeting of South Durham and North Yorkshire Veterinary Medical Association, James H. Taylor, Hon. Sec.*

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Mr. Peele asked if any of the members had used nuclein in pneumonia. He had used it with excellent results. In his experience you were apt to get an abscess [May be avoided by dilution.] at the seat of injection, in spite of all aseptic precautions. He usually gave it alone without the administration of other medicines.

Mr. Hill stated that he had used nuclein in navel-ill in foals with excellent results. In one case he had used it upon the foal that had bad abscesses and an open urachus, and had to be lifted up. It did very well, making a good recovery.

He had also used it in distemper in dogs, and in a very bad case of follicular mange in a dog, the dog being very weak, and at first looked as if it should be destroyed. After treatment, however, the dog commenced to eat and improve, and eventually did well. He had not had the same experience as Mr. Peele as regards the abscess formation at the seat of injection.

Mr. Forbes had used Nuclein in pneumonia, and in his experience it was invaluable in reducing temperature, one dose usually bringing the temperature down, which lasted for two days.

Mr. Walker had used Nuclein in saline solution, but could not agree that it brought down the temperature as described by Mr. Forbes. He once treated a heifer, which had a temperature of 102° F. for a fortnight, with nuclein, but the temperature remained stationary [Probably normal] all the time, although after commencing to use it the heifer started to feed much better.

He had recently been treating a sow with a litter of six or seven pigs all affected with mange, but the peculiar part of the thing was that some pigs who were being fed for the butcher did not get the disease, although they came in contact with the others. There was no doubt about it being mange, for he found the parasite causing the disease in large numbers.

### Formalin for Bursattee

I do not mind summer sores at all, in fact I am inclined to laugh at the idea that their treatment is a serious matter.

I simply bind on them some cotton saturated with a ten percent solution of formalin and send them home.

This cotton needs to be bandaged on the sores with great deal of care, since if it is allowed to slip onto sound tissue, a serious slough will result.

R. C. MOORE, D. V. S.
Kansas City, Mo.

### A Case of Pyonephrosis

August 24, 1911, one of my clients reported he had a twelve-year-old, 1,350-pound mare in foal that had been passing blood clots and bloody strings from her vulva. He had first noticed this while working her to a plow. When the mare stopped she would strain and pass some of this material. I prescribed urinary sedatives and rest.

September 24 this mare was brought to my office. The discharge of blood had ceased; everything seemed normal except that she did not have complete control of her hind parts. Diagnosis: nephritis. I prescribed treatment and the mare appeared to make complete recovery, but on November 6 the owner called and said he had driven mare to town the day before and she was now discharging large quantities of blood.

I found the mare's temperature 102° F.; breathing accelerated, appetite poor, straining and passing blood clots from the urethra and having a swelling over the left kidney.

November 12 I received another call from the owner of this mare who stated that she was down, unable to rise and suffering intensely. She had aborted and was up eating before I arrived. The swelling over the left kidney had disappeared and she had ceased to pass blood.

I told the owner if she died I wished to hold a postmortem examination and on December 1 I had this opportunity. I found the left kidney weighing thirty pounds; when incised it contained from five to seven quarts of thick, creamy pus and clots of blood.

I report this case because on investigating the literature along this line I found it said that when the blood passed in clots the seat of the trouble was in the bladder, but when it came from the kidneys no clots would be found, but the urine would be bloody. The literature on the passing of blood in the urine by man states the same, nevertheless I still believed the trouble was in the kidneys; an autopsy showed this to be the case.

J. H. MILLS, D. V. M.
Russiaville, Ind.

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[May not the pyonephrosis have been coincident with the discharge of blood clots and not the source of these clots? It is difficult to conceive of blood clots withstanding the disintegrating effects of so much pyogenic infection for a period sufficient to allow them

to pass from the kidney to the external world by the natural route. And further, the fact is significant that the discharge of blood ceased with the occurrence of the abortion and did not occur during the succeeding three weeks although the nephritis continued to grow progressively worse.—ED.]

### Was it a Pedunculated Tumor?

A question of diagnosis is raised by the case report on page 24 of your January, 1912, issue, entitled Intestinal Strangulation by Ovarian Ligament.

It is difficult to follow the description of the case because no data are submitted to account for an ovary having so long an attachment that its ligament might incarcerate an intestine. Normally the ovary of the mare is securely fixed in the anterior margin of the broad ligament of the uterus, and additional security to its position assured by the ovarian ligament on one side and the oviduct leading to the horn on the other side. It can not well drop from its normal position without dragging along with it the broad ligament as a broad triangular sheet, which would prevent its incarcerating the intestine. In fact it can not well leave its normal situation except it is greatly enlarged so that the weight drags it downwards and forwards; but of enlargement the writer offers no evidence.

Was not Dr. Robinson dealing with a pedunculated cystic tumor emanating from the parovarium like that illustrated on page 333 of Williams' Veterinary Obstetrics? If so and a diagnosis had been made in season, a vaginal incision as for ovariotomy, followed by severing of the peduncle of the tumor, with or without its removal, would have been indicated.

W. L. WILLIAMS.

Ithaca, N. Y.

### Were These Cases of Ascites?

On page 704 of your issue for August, 1911, is given a case report designated "Unusual Case of Ascites", and on page 29 of your issue for January, 1912, a similar case is recorded.

An analysis of each article will reveal that neither of the reporters have submitted evidence of the existence of ascites.

Each has submitted conclusive evidence of a large intra-abdominal collection of fluid. Such collections of fluid may and do occur in the peritoneal cavity (ascites), in the kidney (hydronephrosis), in the uterus (hydrometra), in the amniotic cavity (hydramnios), in the allantois (hydrallantois), and in other organs.

It is significant that each case occurred in the cow, an animal in which ascites is well nigh unknown, and in which dropsy of the amnion and allantois is common, as is pointed out in Williams' Veterinary Obstetrics, page 424.

In the first case the reporter fails to record whether his case was pregnant or farrow, whether she lived or died, or whether he had any evidence of ascites except that he inserted a trocar and a large volume of fluid escaped. He fails to state if the fluid was clear and lim-

pid, as is the rule in dropsy of the amnion and allantois, or faintly colored as in the common rule with ascites.

Dr. Van Allstyne submits more definite evidence, but it points away from ascites toward dropsy of the amnion and allantois. His patient was pregnant, was at the period of pregnancy when amniotic dropsy was probable, and she aborted shortly after the evacuation of the fluid.

A rectal exploration in either case should have made the diagnosis clear.

W. L. WILLIAMS.

Ithaca, N. Y.

### Umbilical Infection

I have had many cases of umbilical infection to deal with; particularly during very wet springs when the mares are kept in barns at foaling time, and sanitary conditions in many cases very poor indeed. Shortly after the birth of many colts in my locality, I am called to see them, and almost invariably find them suffering from umbilical infection. I usually find these colts lying in a wet filthy shed or barnyard, and, if infection has been present for some time, swollen joints and a severe attack of arthritis is in evidence. Under such conditions, of course, it is necessary to at once get very busy.

I have as sanitary a place fixed as is possible to secure and clean the little fellow up, using plenty of antiseptics, remove the remainder of the umbilical cord very close to the abdominal wall, thoroughly cauterize the stump with pure phenol and arrest the cauterization with absolute alcohol, follow this with a dry dressing of boric acid, acetanilid and iodoform, and administer bacterins hypodermically.

As a treatment for distended joints, I first soften the tissues around the joint by the use of very hot applications, next I withdraw the superabundance of fluid with the trocar and canula, and then poultice the affected parts with an antiseptic cataplasm to relieve inflammatory condition as much as possible. I have found this treatment quite successful.

Experience seems to teach that the best treatment for this disease consists of the proper sanitary conditions, and in giving the foal the right attention at the time of birth. If the veterinarian can impress his patron with the necessity of caring for the umbilical cord at the right time, he will not only enhance his reputation among his clients but he will also render valuable service to his community. I have had many patrons tell me this season that they would rather be to the expense of calling a veterinarian to guard against this dreaded infection than to pay one for curing it. People who have had trouble with this disease and sustained losses feel the need of a veterinarian's services ever after.

The day is close at hand when breeders of good horses will call the professional man to look after the delivery of the foal. A great many have already found it to their interests to do so. Our suc-

cess as veterinarians lies in rendering our services at the proper time, and not in being like the cow's tail—always behind. I think that it is surely our duty to leave this impression with our patrons.

H. J. McCARTNEY.

Joplin, Mo.

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### Prevention and Treatment of Corns

There are three kinds of corns with which the veterinarian has to contend, and the one in appearance least significant is usually the most troublesome to the young practitioner, i. e., the dry corn or the one that simply shows an echymosis or red spot. There are, according to Dr. Zindle, three kinds of corns, viz., the dry, which is a simple redness in the angle of the bar and outer wall and which in my opinion is the most puzzling in so far as diagnosis of the lameness it occasions is concerned, since the lameness in most cases is not recognized as being due to the redness or dry corn and is looked for in some other part of the limb. The moist corn is more easily recognized and usually receives proper attention. The suppurating corn is also recognized and proper treatment and rest given to the animal.

The predisposing causes of corns may be divided into the following six classes: Conditions of the foot, kind of work, immaturity of the tissues, condition of the roads, heredity, faulty shoeing.

The five first are contributory only, but the sixth, in my opinion, is the only real cause. Has any one ever seen a corn in an unshod horse? or one that had never been shod? Then, again, the definition of a corn as given by Dr. W. Williams is sufficient to remove all doubt as to the real cause of a true corn. As veterinarians we do not deny that bruising of the frog and sole of the unshod as well as the shod horse may occur, but I for one do affirm that true corns can only be produced by the farrier and his improper shoeing. Therefore, the shoer should be educated in the anatomy of the horse's foot and also instructed in the application and the making of the shoe.

The ignorant horse shoer is quite a contributor financially to the veterinary profession, as his poor work causes *all* of the corns that the veterinarian gets to treat as so-called gravel. Corns are not known by that name by the horse shoer, but if suppuration has taken place, gravel is the name given it by the smith and for some reason better known to themselves nine out of ten attending veterinarians confirm this diagnosis and in that way the shoer is left blameless, and his work goes on in the same old rut. As to so-called gravel, from what does it take its name? The writer has been in practice for over forty years and for nine years at practical work in a shoeing shop, yet has never seen a case of gravel, but I have seen thousands of true corns caused by improper shoeing and no doubt in my earlier years I contributed my share as a manufacturer of corns and in my ignorance I was proud to be recognized as a *practical* horseshoer.

The average horseshoer is egotistic and no man living can teach him anything about his craft, especially if he has been shoeing horses for eight or ten years. Don't try to teach the horseshoer in anything pertaining to his chosen and studied art. The same may be said of some of those in the veterinary profession, but as a rule the veterinarian is farther advanced in education and science and this spurs him to the acquisition of more knowledge and to keep abreast of his professional brothers.

The art of scientific horseshoeing is something that is greatly neglected in the majority of veterinary colleges, and the average veterinary student enters on his professional career insufficiently equipped to face the task of his professional career as far as qualification is concerned for diagnosing and correcting faulty gaits, certain kinds of lameness and deformities of the hoof. Such veterinarians are at a disadvantage, and instead of going to the shoer and explaining to him what to do for his patient and how to do it, he must accept the theory advanced by the shoer and admit his ignorance of the art instead of showing the superiority of his knowledge over that of the common horseshoer. Who gets the credit if the animal gets well? The horseshoer. Who gets the blame if he fails? The veterinarian.

This article was inspired by seeing a request in the AMERICAN JOURNAL OF VETERINARY MEDICINE for December, page 870, for a satisfactory formula for the treatment of corns in horses. The only correct and scientific formula for the treatment and the prevention of corns in horses that I have ever been able to figure out is as follows:

Correct paring of the foot, and the application of the proper kind of a shoe to remove the cause of the injury. If suppuration has taken place evacuate the pus and treat the wound as you would any other wound but always remember that the sole of the foot comes in contact with the ground and must be protected from infection. If it is a simple dry corn remove the shoe, pare the sole to the white line, place foot in soft moist poultice for a few days; use a proper shoe that will take off all the pressure over the region of injury and all will be well.

I will give my experience of corns with my own horses. I have owned and driven horses all my life and for the last thirty years in the city of Indianapolis, which is supplied with plenty of hard streets, and in all that time I have only experienced one case of corns in one of my own horses, and this one contracted his corn during a two-months' vacation of mine. This same horse was driven by me for twenty-one years. I am driving at present a mare that was fifteen years old on the 22nd of February. I have driven her since she was two years old—she is and always has been free from corns or any other blemish and always will be as long as I can see to her shoeing.

In conclusion I say to those of the veterinary profession: Pay attention to the foot, study it, and see to it yourself when you have a horse shod and all will be well. With proper paring, the application of the indicated shoe, eighty per cent of lameness of our city horses can be corrected without any other aid.

L. A. GREINER.
*Professor of Shoeing and Lameness, Terre Haute Veterinary College.*
Terre Haute, Ind.

### Formula for Fleming's Fistula and Poll-Evil Cure

Replying to an inquiry in the December JOURNAL for formula for Fleming Bros. Poll-evil and Fistula Cure, I will say that the following preparation is very similar and, I think, fully equal to the much-advertised proprietary.

For lump jaw the olive oil may be omitted. Use as a liquid blister at intervals of ten days.

Tr. Cantharidis.....ozs. 2
Tr. iodi.....ozs. 3
Ol. Terebinthinæ....ozs. 4
Ol. Succini.....oz. 1
Ol. Tiglii.....oz. 1
Hydrarg. Chl. Cor....drs. 3
Ol. Olivæ.....ozs. 8

M. Sig. Inject into sinuses at intervals of seven to ten days.

S. E. WATKINS, D. V. S.
Hanford, Cal.

### Rubber Hose for Balling

Recently I had occasion to give a client a dozen capsules containing an irritant drug, and in administering them he scratched his hand. He then looked around for some means to save his skin and seeing a garden hose which was the right size to accommodate the capsule he promptly cut off about eighteen inches of it and fixed a ram rod to expel the bolus. He whittled the rough edges off the end of the hose, and it certainly made a handy balling gun.

The veterinarian who wishes to make it convenient for his customer to administer boluses will find a piece of garden hose a cheap and effective means.

V. E. TANNER, V. S.
Vonda, Sask., Can.

### Formula for Fleming's Lump Jaw Cure

Here is the formula for a preparation that serves me as well as does Fleming's lump jaw cure and has also the same physical properties:

Croton oil.....2 parts
Tr. iodine.....1 part

I make a liniment as follows that I am unable to tell from "Ketchel's liniment":

Wood alcohol.....pt. 1
Iodine resublimed.....grs. 5
Mix.

E. F. MCGRAW, V. S.
Fort Scott, Kan.

### Unsuspected Intestinal Perforation

I was called about ten o'clock, a. m., Sunday, August 13, 1911, to see a horse with "colic," and found my patient to be an animal about fourteen years and in fair condition. Exhibited fair peristal-

sis, a pulse and respiration nearly normal, very little bloat, but the eyes and facial expression told of great suffering. The temperature was 103.6° F. The animal was on his feet most of the time but at no time did he show great restlessness. He had not been in service for four weeks, and had been found sick Saturday morning. He was fed a moderate ration of cracked corn and bran and his hay was of very poor quality, containing many weeds.

This animal was taken to the hospital and his stomach washed out three times with a Knisely and Stallsmith stomach tube at intervals of several hours. The contents that came away were very dark and of the odor of a post-mortem room.

The owner came to see the horse Sunday afternoon and at this time said he had been treated on Saturday by another veterinarian. This veterinarian was consulted and he said that on Saturday the horse had a temperature of 107° F., and that in the region of the left flank there was an area as large as the crown of a man's hat which was very hot and when palpated would cause so much pain that the animal would drop right to the ground. This area showed no soreness or elevation of temperature on Sunday.

The animal died Sunday night and an autopsy was held Monday morning.

The omentum was very much congested and upon investigation a stick or portion of weed was found which was one-eighth of an inch in diameter and five and one-quarter inches long. Later two holes were found in the duodenum which were exactly five and a quarter inches apart, which indicated that the stick had got crossed in the intestine and punctured it at either end, and later worked through one of the apertures.

Ten days later a parallel case came under my observation, which had one particular symptom which was so strongly represented in each case that I am wondering if it will hold good in similar cases in the future, viz., the head, ears and a portion of the neck were cold and clammy and the remainder of the body of a normal temperature.

LESLIE ROWLES.
*Kansas City Veterinary College, 1912*
Kansas City, Mo.

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### Successful Treatment for "Alfalfa Rash"

I will say "no," in answer to the question, "Is it sarcoptic mange?" (Page 869, December issue, VETERINARY MEDICINE). In districts where alfalfa hay is fed exclusively, this pruritic condition of the skin with its hairless indurated spots is common. The sun's rays in summer increase the itching, which seems to drive some animals almost crazy. I have obtained the best results from the following:

Change the feed to grass if possible. Give magnesium sulphate, one pound, and continue with small doses in the drinking water. This stimulates the kidneys and keeps the bowels in good

condition. Fowler's solution internally in ascending and descending doses (large doses are borne with the saline). The lesions are blistered by an application of the following:

Cantharides, 1 oz.; vaseline, 10 ozs.; Carolina pine tar, 4 ozs.; denatured alcohol, 4 ozs.; powdered sanguinaria, 2 ozs. This starts the hair out in seven to ten days and immediately stops the itching. Usually a balanitis is present, which is best treated with a ten-percent solution of silver nitrate. Use distilled water.

D. S. KAY.

Los Banos, Cal.

### Eczema of Horses

In answer to the inquiry made by Dr. N. J. Cleveland, Santa Paula, Cal. (page 869, December issue), I have had some little experience with this disease among horses in central Ohio. To all appearances this disease appears to be sacroptic mange. But a microscopic examination of a scraping from the lesions gives negative results.

I was called to see a case of this description, with symptoms simulating exactly those given by Dr. Cleveland. My diagnosis from all skin lesions was sacroptic mange; but the microscopic examination disclosed my error. I then came to the conclusion that it must be an eczema. It might be termed "summer rash" and is marked by intense pruritis, especially along lateral surface of neck and withers, but may spread to larger areas, and then presents irregularly grouped papules or spots from size of a millet seed to that of a pea. In later stages, owing to an exudation from the papules beneath, they are surmounted by vesicles covered by small scabs. This exudation glues the hair around the vesicles which heal temporarily, leaving small scars from which spring new vesicles, causing a continuous process. Affected animals scratch continually:

*Treatment.*—In these cases I could control the itching with coal-tar preparations, but could effect no cure with them. However, I was successful with the following, which with two applications in one case and one in another brought about a recovery that has been permanent to date; it may recur with the advent of warm weather, but it is worth while even though it effects a cure for one summer only.

| | |
|---|---|
| Sulphur | 50. |
| Mercury | 5. |
| Cantharides | 20. |
| Vaseline | 400. |

Apply at once and repeat if necessary. Friedberger and Fröhner give this formula.

TRUMAN B. HINKLE,
*University of Ohio, 1912.*

Columbus, O.

### "White Rock" for Dry Hoofs

Replying to the query of J. V. Katzenberger (page 870, December issue): Send to Tuttle and Clark, Detroit, Michigan, and get ten pounds of White Rock. It is a species of clay. I have used it for thirty years for applying moisture

to hard, brittle feet of horses. Use from two to five pounds to a large pail of water—in two days it is ready for use. The corns must be well cut out, then keep the feet filled with the above every night.

CHANDLER QUINTIN.
Harrodsburg, Ky.

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### Radical Operation on a Hermaphrodite*

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This subject was a bay hermaphrodite four years old, but small, weighing less than 900 pounds. The anterior portion resembled the male; the posterior half of the body with its perfect udder, resembled a mare.

Its disposition was that of a stallion. The short penis, about three inches long, in an almost continuous state of erection, extended through a small opening six inches below the anus. Through this penis the urine escaped, usually dropping on the tail, legs, buggy wheels and sometimes reaching the dashboard, making it dangerous as well as embarrassing to drive the animal.

The faults of this critter were many. It could not be safely turned out with other stock or into adjoining pasture. It could not be worked with other horses with any satisfaction. In fact, every equine looked to it like a mare in estrum. With half an opportunity it would mount on one and with the aid of its tail pressing against the erected penis would discharge the semen in its own tail. This young animal was practically worthless except as a curiosity, but offered a fine opportunity for some experimenting.

In June, 1910, this animal was cast and chloroformed. The tail was bandaged and the operative field cleansed. A sterile soft catheter was introduced and the bladder and the urethra irrigated with an antiseptic solution. The penis was dissected an inch and a half inward and upward and amputated, leaving the urethra protruding one-fourth of an inch. The catheter was left in and the bladder and urethra irrigated daily with five-percent potassium permanganate solution for one week, and the wound dressed with a dry dressing.

Owing to the position and irregular size of the urethra the amputation was much more difficult than this operation ordinarily is. In two weeks another operation was performed by laying open the urethra for a distance of three inches to resemble a vulva. From this opening the urine is now expelled as expeditiously as from a mare. The wound was packed and edges allowed to heal without uniting.

The patient was given the following treatment:

| | |
|---|---|
| Nucleinic acid yeast | grs. xii |
| Sodium chloride | grs. vi |
| Sodium bicarbonate | grs. v |
| Phenol | m. ii |
| Aqua destillata | oz. i |

Mix and filter. Give hypodermatically one dram twice daily in equal parts of saline solution. In one week the animal was ready for work again, and medication was

*Presented at meeting of the Oklahoma Veterinary Association, Oklahoma City, December 14–15, 1911.

discontinued. As the testicles were in the abdominal cavity, they were not removed. From the first operation the animal became docile and began to grow and fatten until now it weighs over 1,300 pounds. It can be turned loose or worked with other horses with satisfaction, and is a beast of burden equal to a mule.

O. D. CHEDESTER, D. V. S.
Cordell, Okla.

### Two Valuable Acquisitions

Enclosed find a check for one dollar. Please keep the journal coming this way; I couldn't do without it.

Would have remitted sooner, but was away on a little wedding trip. If you will excuse me this time, shall try not to let the occasion for such a trip happen again, right away.

E. C. JOHNSON, D. V. S.
Waldron, Kan.

[Thanks and congratulations.]

### Furuncles With Dark Centers

On one occasion a man came up to the accident department with what appeared to be a boil on his arm. It was rather a large one, and had a dark, almost black, sloughing center. It was fomented and he was told to continue the same treatment at home and to return if not improved. When next seen he was dying. The so-called boil was really a malignant pustule of anthrax.

It is very important never to look at a boil or carbuncle showing either a dark center or a ring of vesicles, without asking oneself, "Could this possibly be anthrax?" The diagnosis can of course be decided by looking for the organisms.—A. Rendle Short, M. D., "Surgical Calamities," *The Antiseptic*, October, 1911.

### A Hoof Ointment

In the December number of VETERINARY MEDICINE, J. V. Katzenberger, Garfield, Washington, wants a formula for a mixture of "mud" for applying moisture to horse's feet.

I use the following to good advantage:

Petrolatum..... lb. 5
Venice turpentine.....oz. 8

Mix and color as desired with almost anything. Apply to bottom of feet and outside two or three times a week.

C. H. GRANGE.
Elk Point, S. D.

### Impaction Grass

On August 16th I was called to see a gelding weighing about 1,400 pounds. The owner said that the horse had been sick the day before, but like most others of his kind thought his horse would be well the next day. Well, he was not, and as a consequence I got the call.

I found that there was no peristaltic action, and diagnosed the case as impaction. The owner doubted this because the horse had been running on green grass for a week.

I at once injected hypodermically 1 1-2 grains of arecoline hydrobromide, which induced profuse salivation, but nothing more. After waiting an hour I injected one and one-half grains more, making in all three grains of arecoline. I was then called away, but the next morning I received a 'phone message that the medicine had worked and the horse was eating and was much improved and would be put to work in a few days.

I thought this might interest some of your readers, as arecoline is not supposed to be given in more than one-grain dosage and at that the doses given some hours apart, and further because impaction is rather uncommon in animals feeding exclusively upon green grass.

This horse did not show any bad results from the medicine.

A. L. WARTH, D. V. S.
Madison, Kan.

### Missouri Ethics

Report of the committee of ethics of the Missouri State Veterinary Association, December, 1911.

*First:* The retention of certificates of membership in any association by men that are no longer members in good standing is unethical and we recommend that it be discontinued. Upon proof of such retention of certificates this committee recommends that the offender be called before the executive committee to show cause why he should not be expelled from this association.

*Second:* It is said, although we have no information to this effect in writing, that there are yet a few veterinary practitioners that have no regard for honesty and integrity in the issuance of health certificates. The issuance of false certificates degrades the profession more than any other act and we ask any member having knowledge of such procedure to supply it in writing to this committee before the adjournment of this meeting. On receipt of positive proof of such illegal or dishonest practice this committee will recommend that such members be expelled from this association, and will also recommend their expulsion from all other professional organizations to which they may belong; and further will recommend that the Examining Board disqualify said practitioners from practicing in the state of Missouri.

A. T. KINSLEY,
A. TRICKET,
O. STUART.
*Committee on Ethics.*

### A Vesical Calculus

Urinary Calculi: November 4 I was called to see a fine mare mule which I had treated about six months before for kidney trouble, solely upon the owner's history of the case, but had lately been getting worse. From the history of the case given me by the owner I thought it likely that a urinary calculus was present and upon examination *per vaginum* my diagnosis was confirmed. We then decided to operate.

We gave the patient a large dose of cannabis indica and cast her and in about forty-five minutes

we had the calculus removed. It adhered to the superior surface of the neck of the bladder and the neck of the calculus extended into the posterior portion of the urethra while the body extended into the bladder. The sphincter vesicae by thus surrounding it had caused it to form much smaller in the middle than it was at each end, thus giving it a peculiar shape.

The calculus was granular in appearance and weighed sixteen ounces; not wishing to spoil it for a specimen I did not break it to determine its composition.

The mare made a good and rapid recovery and on December 17 I saw her working in a team and looking much better than she had for two years.

BURL W. GRAY.
*Cincinnati Veterinary College, 1913*
Cincinnati, Ohio.

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### Should Horse Be Clipped

Often complaints become numerous as to horses "doing" badly. Either they are off their feed or their food seems to "do them no good," as the attendant expresses it, or they are dull, spiritless, sluggish, easily fatigued, sweat profusely on the slightest exertion, and their coats are rough, lusterless and staring. Even horses that are managed on the most approved lines are always very much below par at the season of changing the coat, and when it grows long they suffer from coughs and colds, show signs of debility, and do not perform their work well.

For most cases of this kind, clipping will be found the best remedy, and the question, should horses be clipped? can be answered in the affirmative, at least in the case of the animals called upon to perform fast or severe work. We are, of course, aware that clipping has its opponents as well as its advocates, although the former are becoming fewer in number every year. The chief arguments against clipping seem to be that our fathers did not clip; that the summer coat comes better in the unclipped animal, and that it is contrary to nature, who would not have provided the thick garment if unnecessary.

The first contention is admitted. The last generation did not clip its horses, and for this there were two reasons; it did not know any better, and it had not the same facilities for doing so as exist today. The few horses that were then clipped had the coat removed with the comb and scissors, and in some cases with the razor, and this meant at least at a cost of $15, and considerable alcoholic refreshment. Those who remember the days before the perfection of the clipping machine can quite understand why our fathers did not commonly clip their horses, or, when they did so, clipped them but once in the season. Moreover, their management was not better than ours, nor were horses healthier; indeed, in many cases their stables were hot-beds of disease. They were kept at a tropical heat, generally by the careful exclusion of pure air, and the animals were heavily clothed to prevent the growth of the coat. In large stables more men were kept, men were cheaper and better, and had to rub their charges dry when they came in dripping wet. The hot stables, several heavy rugs, and the larger amount of grooming kept the coat from growing to the extent it does now that stables are more airy, clothing lighter and men lazier. The second objection, that the summer coat does not come so nicely, is admitted also, and it is especially true if the clipping is too frequent or too late. To clip after the second week in January is to spoil the summer coat, and the animal is of several colors, very rough in coat, and altogether deficient in the bloom characteristic of the animal which has shed its winter coat naturally. Perhaps it is better to have comfortable working health, and freedom from coughs and colds during autumn and winter, than a smart appearance in the spring, but they can all be secured, if there is a judicious selection of time, and if ordinary care is exercised. A great deal depends on the breeding of the animal, the grooming, and the conditions under which it is kept. It is cold that induces the growth of the coat, and a horse turned out or kept in a cold, draughty stable, and only half groomed, will, especially if coarse bred, have a long coat at a much earlier period than one warmly sheltered and well dressed.

The theory of interference with Nature's provision is absurd. Nature provides the horse with two coats every year. In the spring he sheds his long winter coat for a fine short covering of hair that is more porous and retains the animal heat less perfectly. In a state of nature he would be admirably provided to withstand the cold of winter, especially if he got plenty to eat, but under domestication the conditions are changed, and he has to work instead of roaming at liberty in the fields.

Animals performing fast or severe work with a long coat suffer an unnecessary drain on the system. The sweat of the horse is not a simple mixture of water and salts, but of water, proteid and salts, and the observed loss of flesh which follows horses being worked unclipped, as was the practice a generation ago is thus readily explained. The chances of chill following the return to the stable of an unclipped animal, with a long winter coat that takes two men an hour to dry, even if they are willing to try, have not been exaggerated. Therefore, this covering, which, in a state of nature would be an admirable provision for keeping him warm, becomes, under artificial conditions, a source of positive danger to him. This, we think, disposes of the arguments against clipping, certainly where fast working horses are concerned, the advantages are too obvious to need enumeration. Unless the circumstances are exceptional, all horses that move beyond a walk should be clipped and artificially clothed, and it will be found as a result that they feed, thrive and work better, and are less subject to colds and coughs.

Some contend that the horse of slow draught neither requires the coat removing nor clothing, that is, that agricultural horses do not benefit by clipping. We are not so sure about it, but the practice is certainly increasing, and many farmers claim, and we know that they do so correctly, that it ensures a freedom from coughs and colds that they did not enjoy before its practice was commenced on their teams.—W. R. Gilbert, in *Horse Review.*

### Cure for Black Tongue—Maybe

Four to eight thousand units of diphtheria antitoxin, will cure "black tongue." I recently had two cases, one just beginning and the other very bad, tongue swollen and black, and limbs stiff so the dogs could not walk without toppling over, and I used 5,000 units on each, and in two days they were both well and eating.

JOHN A. DAVIS, M.-D.
Bedford City, Va.

### Bacterins for Leucorrhea

Enclosed find one dollar fo my renewal. I think the journa a valuable, sprightly visitor an am always glad when it comes.

Regarding the use of the Poly Bacterins, I have used it lately with fine results in two cases o leucorrhea in mares, which wa due, as I believe it always is, t some dirty-handed, rough fellow doing the "opening" stunt at th time of breeding. After flushing the uterus once with a strong boric solution I have found it necessary to use Poly-Bacterins only five times, three days apart, in each case.

L. H. MATHERS.
Sebastopol, Cal.

### Strangles Preventable?

Strangles, or colt distemper, is caused by a germ (streptococcus equi), and is therefore contagious. It is most common in the spring, as conditions at that time of the year are most favorable, such as sudden changes, cold rains, exposures, etc.

The symptoms are those of high fever, weak pulse, accelerated respiration, prostration to a greater or less extent, loss of appetite, and emaciation. The duration of the disease is usually about three to four weeks.

Most animals recover spontaneously, but it is not economy to allow animals to go untreated. We have noted some of the following conditions as a sequel:

Secondary infection by this same pus germ, causing swollen and sometimes suppurating joints, as the stifle, etc. Sometimes abscesses form in the internal organs and occasionally pneumonia results. The animal often becomes so saturated by the toxin that it may not entirely recover from its effects, or at least not for several months.

This laboratory has been continuing its experiments with a bacterin made from the germ causing the disease. Three reports will serve to give an idea of the value of such treatment.

Lot A, consisted of ten head of horses, most of them young. All had been exposed to the disease. These horses received double vaccination and while the neighbors' horses similarly exposed came down with strangles, none of these developed the disease.

Lot B, consisted of forty-two horses, all exposed to the disease. Only a single vaccination was given and twelve developed the disease, but all in a light form.

Lot C, consisted of four head, all exposed. Double vaccination was used and none developed the disease.

To make sure, as a prophylactic, two vaccinations are advisable. This bacterin also has curative effects when given to horses that have developed the disease.—B. F. KAUPP. Colorado Agricultural College, Fort Collins, Colo.

### To Accompany Statements

Here is a little poem of my own manufacture which I send along with statements to delinquent clients. I find it helps a great deal in securing remittances.

BE FAIR

Just stop and think in times gone past,
Of the favors of me the public has asked.
I am called night and day through rain and through snow,
Regardless of weather I am asked to go
To some man's place to see after his sick;
When I answer the 'phone, 'tis always "come quick;"
No thought of the doctor for money's at stake,
He must come right away half asleep or awake.
The reason I'm called is because you're in need,
Without my assistance you cannot proceed.
How many times do I ever refuse
To come to your aid regardless of dues?
How mad you'd be if no attention I'd pay
To your eager calling, but just stay away.
I'm sure you would think that I didn't care
For you or your business, but just my affair.
Now, in the Bible the commandment's most true,
Do unto others as you'd have them to you.
Life, we all know, is a passing of time.
The love of money is the root of all crime.
In solving this problem, truly 'tis found,
That money's the stuff makes the world go 'round.
That I need money you plainly can see;
I helped you, so now please help me.

M. RUSSELL.

Bangor, Ia.

### The Last Word on the Subject

Dr. L. H. Pammel's "Manual of Poisonous and Medicinal Plants" has just been completed and has appeared from the press.

It is a volume of nearly a thousand pages, with numerous illustrations. In time it will be on the shelves of every progressive veterinarian. It is to the subject of harmful plants what Ostertag is to meat inspection, or what Neumann is to parasites. The work is encyclopedic in character—an invaluable reference work for the veterinarian.—*Chicago Veterinary College Quarterly Bulletin.*

### Infectious Vaginitis

Replying to the inquiry of "S. E. N.—Utah" (page 76, February issue). This is a disease that affects cattle especially, and has of late years become alarmingly frequent. Whilst not so directly harmful as is tuberculosis, the indirect loss resulting from this disease in the way of lessened production of dairy products and calves, is enormous and inestimable. Since the disease is very infectious, the fact that its presence is not shown by any readily noted symptoms in the animals affected, makes its rapid spread almost certain unless proper means of inspection and treatment are instituted. In many sections of the country entire herds are involved, only one half the

proper number of calves being obtainable. Miscarriage and still-birth frequently occur. Throughout Germany cattle owners are aroused to the necessity of taking up the fight energetically against this disease, and by many state control is being advised. The cost of carrying out appropriate measures by the Government would certainly be much less than the loss now accruing to the owners through the ravages of the disease.

The disease is not difficult to treat, nor to stamp out entirely. But patience and perseverance in carrying out the necessary measures are essential to success. Infection may take place through actual contact with diseased animals, service, stable equipment, or attendants. Hence absolute cleanliness and thorough disinfection are of the first importance. For this purpose, lime, hot soda solution, cresol, and above all irisol in one-half of one percent solution are efficient for stable disinfection. Simple disuse of an infected stable will not do, as infection has occurred where such stable has remained vacant for nine months. In fact, an infected splinter of wood was found to cause the disease after three and one-half years. In case of abortion, both the afterbirth and the dead calf should at once be burned. All diseased animals must be isolated, all suspects treated at once. A diseased bull must not be permitted to serve, and it is safer to treat cow and bull before service in every instance so as to avoid any possible infection. When for economic reasons it is not advisable to await a cure, a separate bull must be kept for the diseased animals. The practice of selling infected cows, often with substituted calves, is most reprehensible. And it is entirely uncalled for, since proper treatment usually effects a cure within six to eight weeks.

Besides what has already been mentioned, the medical treatment consists in the use of Irisol-Vaginalls. These are medicated balls, which are easily inserted into the vagina with the fingers, one being used daily for six to eight days, then one every second or third day. The ball dissolves slowly, securing a prolonged contact of the medicine with the diseased surface, and they are absolutely harmless. Whilst this procedure may safely be entrusted to intelligent stable men, it is by all means advisable to have the herd inspected and treatment carried out under the control of a competent veterinarian. This is evident from what has already been stated as to the nature of the disease, and from the difficulty in recognizing the symptoms by any one not especially trained to the work.

Infected animals usually show no outward symptoms, they feed well, furnish sufficient milk, and to the casual observer seem to be all right. Generally the urine is passed more frequently than is normal, and the animal stands a-straddle for a short time after the act. There is probably some burning pain and straining owing to inflammation around the urethra and tickler. Within eight to fourteen days after infection the membrane lining the vagina is found red and swollen, with small points or nodules raised above the surface, varying in size from a pin-head to that of a milletseed. Gradually the color becomes paler, yellowish, and the nodules more transparent. The presence of these nodules is characteristic of the disease. There is a scanty, glassy discharge, sometimes with more or less flakes of pus; it may be creamy, especially when the disease has extended to the uterus. Externally it dries in the form of grayish crusts, and the parts are swollen and tender on pressure. This discharge is of course the prime source of danger to other animals, and the infection may be carried by a bull not himself diseased. In treating the bull, besides irrigation with irisol solution, the vaginalls may be used.

From the foregoing, the main features in fighting infectious vaginitis are:

1. Inspection of all cattle by a competent veterinarian and appropriate treatment under his control of all diseased and suspected animals.
2. Thorough disinfection of stables and equipment.
3. Prompt isolation of diseased animals and of suspect.
4. Prevention.

To insert Irisol-Vaginalls.—Thoroughly cleanse the external parts with warm water and soap, wash with Irisol solution. The hands are to be treated in the same way. The labia are parted by thumb and finger of the left hand and the Vaginall gently but firmly inserted by thumb and two fingers of the right hand, and left in place. Preparatory irrigation of the vagina with warm one-half percent irisol solution is beneficial.

ERNEST BISCHOFF.

New York.

## Coughs

It is a matter of common knowledge that cough is one of the most frequent and distressing ailments the veterinarian

is called upon to relieve; and it is equally true that no disorder more successfully resists the efforts of the practitioner.

In horses and dogs, as in the case of the human being, it is necessary to study the relation between the thing observed —cough—and its probable origin. In other words, we must look from symptom to cause if we are to have our efforts to effect a cure crowned with success; for while cough is marked by certain characteristic features, it arises from diverse causes and must be treated accordingly.

Generally speaking, cough is the conspicuous symptom marking an inflammation of the breathing passages, caused either by exposure to draughts, excessive dampness, or sudden climatic changes. However, it may be due solely to nervous influences.

In spring and fall, when the coats of horses and dogs are changing, the variable condition of the weather peculiar to these periods is chiefly responsible for the wide prevalence of cough. At these seasons animals are exceedingly prone to contract bronchitis, laryngitis, pneumonia, and other diseases of the breathing-organs, of which cough is a prominent symptom.

And while, as has already been said, it is important that the actual cause of the cough be determined, it is, in every instance, the duty of the veterinarian to resort, with the least possible delay, to cough-checking measures. Indeed, it is good practice to subdue the cough while preparations are making for an attack upon the exciting cause, for the reason that by so doing the suffering of the animal is reduced to the lowest possible limits, his rest is less disturbed, his strength is conserved and his mental condition is improved.

While there is an accumulation of secretions, the breathing-passages become obstructed, causing an oppressive sense of suffocation, intensely alarming to the animal. Should the act of coughing fail to expel the accumulated matter, the animal becomes greatly alarmed and suffers the loss of considerable strength through sheer nervous excitement. When fever is an accompanying symptom, immediate action on the part of the veterinarian becomes all the more necessary.

Regardless of the nature of the exciting cause, cough, whether of recent origin or of long standing, whether dry or hacking, whether accompanied by fever or by difficult breathing, can be promptly cured by the use of Glyco-Heroin (Smith).

As soon as the remedy has been assimilated, the obstruction of the bronchial passages is relieved, the breathing of the animal becomes free, pain subsides, fever disappears, nervous excitement vanishes, rest is made refreshing and the process of recovery is instituted. In proof of this assertion the following clinical observations on chronic cases of cough are given:

Case 1.—Roan gelding, five years old, draught horse; had a severe attack of laryngitis about three months ago. Cough had never left him. The usual remedies that generally relieve a cough were tried until patience on both sides, that of the owner and myself, was pretty nigh exhausted, and decided that this would be a good case to test Glyco-Heroin (Smith). The driver of above horse was supplied with an eight-ounce bottle of Glyco-Heroin (Smith), a syringe (one ounce) and a vessel to measure an ounce, and directed to give one ounce every two hours. After the first eight ounces were given, a marked improvement was noticed; the bottle was refilled again and again until three pints were used, when the driver came in smiling, saying the horse had not coughed for the past few days. Three weeks are now past since his last dose and nothing mentioned of that dreaded cough.

Case 2.—Bay gelding, nine years old, about fifteen hundred pounds. Coughed

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for about two months. Nothing had been given to relieve him; owner simply thought his horse had a slight cold, as he fed well. Finally getting tired of hearing the cough decided to see about it. Glyco-Heroin (Smith) was given, one ounce and a half every two hours; no more was needed than the pint; the cough disappeared.

Case 3.—Fox terrier dog, would cough very frequently. Questions brought out that he had pulled very hard on collar, not being accustomed to being tied. Glyco-Heroin (Smith) was given, half teaspoonful three times a day. Owner reported that the dog stopped the cough on the second day.

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